

WHAT IS CLAIMED IS:

1. An apparatus for bonding a chip, comprising:

a substrate cassette containing a plurality of substrates, the substrate including a first
5 chip, the substrate being electrically connected to electrodes of the first chip;

a substrate conveyor unit located near the substrate cassette at one end and for
conveying the substrate;

a tape providing unit for providing an insulating adhesive tape, the tape providing unit
including:

10 a reel on which the insulating adhesive tape is wound;
a tape cutter for cutting the insulating adhesive tape;
rollers for feeding the insulating adhesive tape from the reel to the tape cutter;
a tape adsorption device for adsorbing the insulating adhesive tape to support
the insulating adhesive tape; and

15 a first tape holding device for engaging with the tape adsorption device to hold
the insulating adhesive tape in position for cutting;

a tape attaching device located between the tape providing unit and the substrate
conveyor and for attaching the insulating adhesive tape to an area between the electrode pads
of the first chip;

20 a wafer table providing a wafer including a second chip; and

a chip attaching device located between the wafer table and the substrate conveyor
unit for attaching the second chip to the insulating adhesive tape on the first chip.

25 2. The apparatus of claim 1, wherein the insulating adhesive tape is at least 50 μ m
thick.

3. The apparatus of claim 1, further comprising:

30 a guide block installed at the lower surface of the insulating adhesive tape passing
between the rollers and the tape cutter; and

a second tape holding device installed at the upper portion of the guide block and
engaging with the guide block to hold the insulating adhesive tape in position for cutting.

4. The apparatus of claim 1, further comprising:
a tape guide installed in front of or in the rear of the rollers with respect to the traveling direction of the insulating adhesive tape and guiding the movement of the insulating adhesive tape.

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5. The apparatus of claim 4, wherein the tape guide has at least one guide groove corresponding to the width of the insulating adhesive tape.

6. The apparatus of claim 5, wherein the depth of the guide groove is greater than
10 the thickness of the insulating adhesive tape and the clearance between the guide groove and the insulating adhesive tape edges is within about three times the maximum allowable tolerance in the width of the insulating adhesive tape.

7. The apparatus of claim 4, wherein the tape guide comprises:
15 a guide plate wider than the insulating adhesive tape and having at one end a step formed higher than the thickness of the insulating adhesive tape; and
a guide adjust unit installed at the guide plate and adjusting the range of use of the guide plate corresponding to the width of the insulating adhesive tape, the guide adjust unit including:
20 a guide post protruding through the upper portion of the guide plate and having at least one slot formed perpendicular to the step of the guide plate;
a guide block located at the lower surface of the guide plate and connected to the other end of the guide post; and
a guide block transfer means connected to the guide block and horizontally
25 moving the guide post along the slot of the guide plate to place the insulating adhesive tape against the step of the guide plate.

8. The apparatus of claim 1, wherein the tape adsorption device is located higher
than the substrate conveyor unit and the tape attaching device is located directly above the
30 substrate conveyor unit, wherein the tape adsorption device adsorbing the insulating adhesive tape moves above the substrate conveyor unit and the tape attaching device moves downward and adsorbs the insulating adhesive tape of the tape adsorption device and then the tape adsorption device returns to an original position and the tape attaching device moves further

downward to attach the insulating adhesive tape to the area between the electrode pads of the first chip.

9. The apparatus of claim 1, further comprising:

5 a substrate collector located near an end of the other side of the substrate conveyor unit and loading the substrates having the second chip.

10. The apparatus of claim 9, further comprising:

10 a repress device located between the chip attaching device and the substrate collector and repressing the second chip on the first chip, wherein the repress device represses under conditions of up to about 400°C, pressure of about 100 to 3,000gf/mm² and for a period of about 10 milliseconds to 10 seconds.

11. The apparatus of claim 1, wherein the tape attaching device is rotatable

15 through 90 degrees.

12. An apparatus for bonding a chip, comprising:

means for providing a substrate including a first chip having electrodes thereon;

a tape providing unit for providing an insulating adhesive tape;

20 a tape attaching device for attaching the insulating adhesive tape to an area between the electrode pads of the first chip; and

a chip attaching device for attaching a second chip to the insulating adhesive tape.

13. The apparatus of claim 12, wherein the tape providing unit comprises:

25 a reel on which the insulating adhesive tape is wound;

a tape cutter for cutting the insulating adhesive tape;

rollers for feeding the insulating adhesive tape from the reel to the tape cutter;

a tape adsorption device for adsorbing the insulating adhesive tape to support the insulating adhesive tape; and

30 a first tape holding device for engaging with the tape adsorption device to hold the insulating adhesive tape in position for cutting.

14. The apparatus of claim 12, wherein the means for providing a substrate comprises a substrate cassette.

5 15. The apparatus of claim 14, further comprising a substrate conveyor unit located near the substrate cassette at one end and for conveying the substrate.

16. The apparatus of claim 15, wherein the tape attaching device is located between the tape providing unit and the substrate conveyor.

10 17. The apparatus of claim 12, further comprising a wafer table providing a wafer including the second chip.

18. The apparatus of claim 17, wherein the chip attaching device is located between the wafer table and the substrate conveyor unit.